A 7-Year-Old Girl with Dyspnea and Rash

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(See pages 73–4 for Photo Quiz)

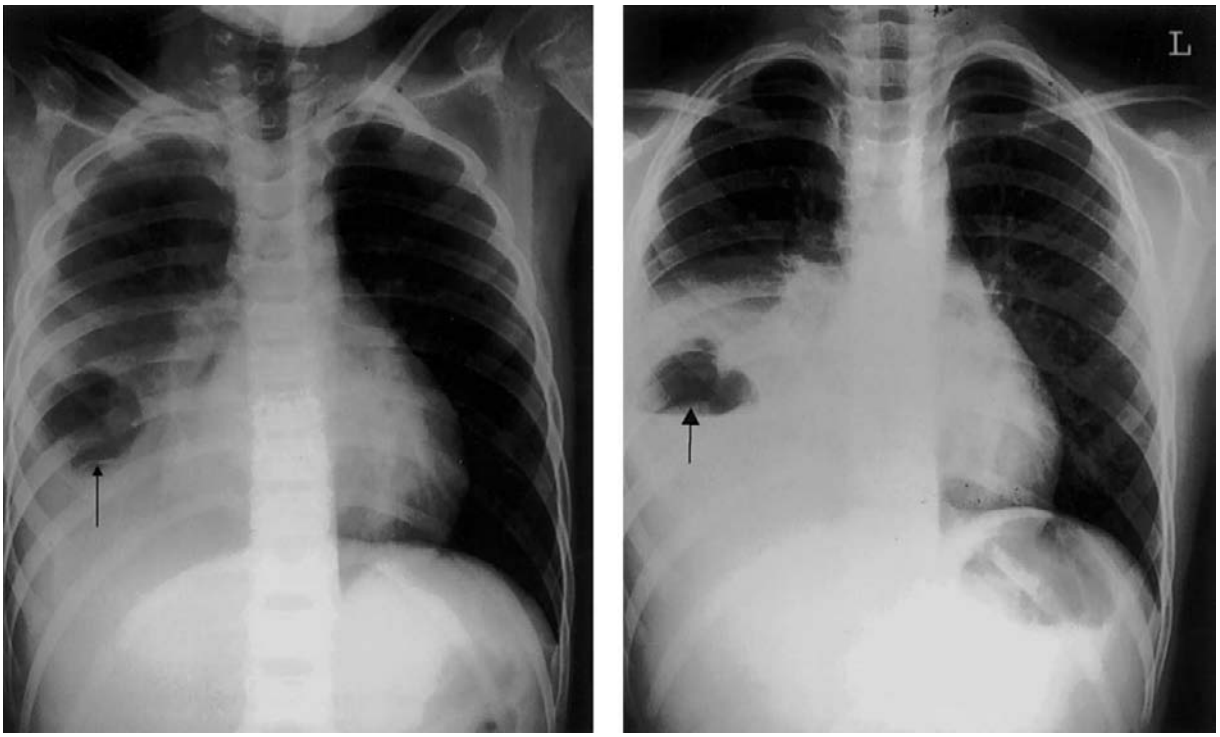

Figure 1. *A,* Supine chest radiograph revealing a cavitary lesion within a consolidated right lower lobe, as well as a small pleural effusion. The curvilinear opacity seen within the cavity *(A, arrow)* appears to be floating on the upright view *(B, arrow).*

Diagnosis: Cystic echinococcosis.

On review of the supine chest radiograph (figure 1), a curvilinear opacity was noted within the cavitary lesion; this opacity appeared to be floating on the upright view. The findings of a CT scan (figure 2) confirmed the presence of characteristic detached and collapsed cyst membranes within the cavity [1]. A small cyst was also present in the liver. Hydatid disease with rupture of a pulmonary cyst was diagnosed, and treatment with albendazole (12 mg/kg q.d.) was initiated. The respiratory symptoms resolved within the following 2 days, and the rash disappeared. Thus, the bilateral consolidations seen on the CT scan might represent transient allergic alveolar-fluid exudation following rupture. Marked blood eosinophilia (cell count, 2400 eosinophils/mL) emerged after 7 days of hospitalization. The girl was discharged from the hospital 12 days after the rupture of the cyst. At the follow-up, 3 months later, her condition was good, the pulmonary cavity had shrunk, but the hepatic cyst remained unchanged. Specific IgG antibodies against *Echinococcus granulosus*, absent from samples obtained from the patient at admission to the hospital, were detected by immunofluorescence (1:5120), ELISA, and immunoblotting procedures performed on samples obtained at follow-up. The WBC count and differential count were normal. The treatment is planned to continue for 6 months and will be followed by posttreatment monitoring for 2 years.

Cystic echinococcosis, also known as cystic hydatid disease, is the most widespread and severe human cestode infection. It is common in Mediterranean countries but is also becoming frequent as an imported disease in other countries in Europe and in the United States [2]. Humans acquire *E. granulosus*

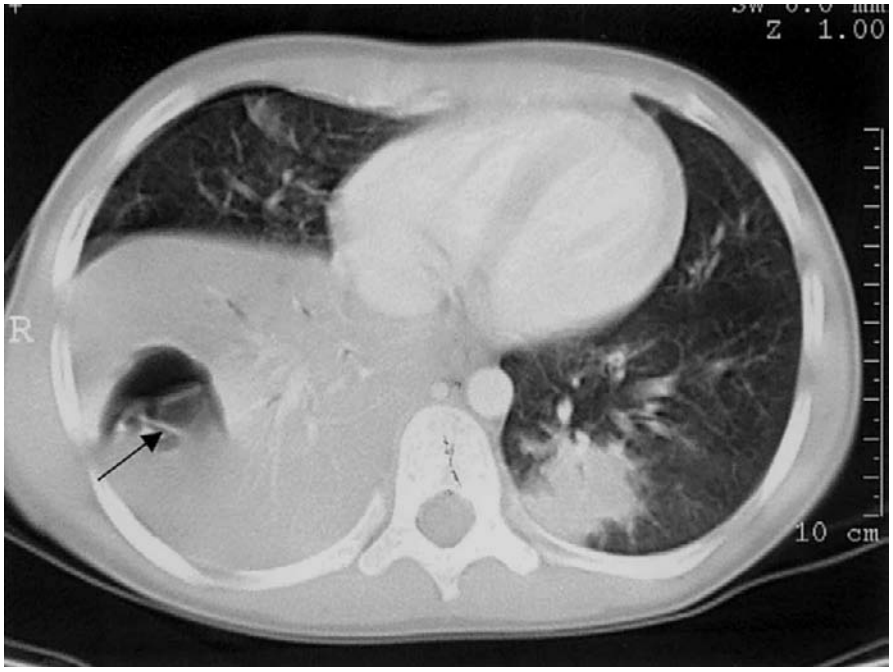

Figure 2. Contrast-enhanced chest CT scan confirming detached and collapsed cyst membranes *(arrow)* within a cavity characteristic of a ruptured hydatid cyst. Findings not previously seen on the radiographs include a second focal consolidation in the left lower lobe and a small right pneumothorax following pleurocentesis.

following ingestion of its eggs, which are shed from the intestine of infected domestic and wild canids. The majority of cysts occur in the liver and are asymptomatic, except when complicated by compression or rupture. In children, however, the lungs are the most common site of disease [3, 4]. Although echinococcosis is rarely the reason for acute dyspnea and rash, this child's presentation is characteristic of the rupture of a formerly-unnoticed pulmonary cyst. Spillage of the contents of the cyst may cause allergic shock. The absence of detectable antibodies against *E. granulosus* during the acute clinical manifestation of the disease is not uncommon (~50% of patients with acute clinical manifestation of the disease have negative blood-test results) [3, 4] and may indicate that the recognition of the infection by the immune system evolves only after a cyst ruptures. Chest CT and abdominal sonography are valuable tools for confirming the diagnosis and monitoring the patients during and after treatment. In the absence of symptoms that are caused by compression, surgical removal of the cyst should not be considered as the first option for treatment; rather, administration of benzimidazole carbamates is the treatment of choice [3, 5, 6]. Because an increasing number of the children who present to emergency departments are immigrants, hydatid disease must be considered among other potential causes of severe respiratory distress before starting specific diagnostics and anti-infective treatment. Empiric treatment with albendazole needs to be initiated if hydatidosis is suspected on the basis of clinical and radiological findings. Serological tests are currently unreliable.

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